

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1. (Currently Amended) A line interface for coupling a twisted pair telephone line with a communications network, comprising:
a broadband analog front end circuit coupling said twisted pair telephone line with said line interface; and
a programmable filter coupled to receive an output signal from said broadband analog front end circuit and configured to filter frequency bands of said output signal into a plurality of separate, variable bandwidth transmission channels, wherein said plurality of separate, variable bandwidth transmission channels are associated with said communications network, and wherein said frequency bands and said variable bandwidths are determined by programming said programmable filter.
2. (Original) The line interface of claim 1, wherein said communications network comprises a data network and a voice network.
3. (Original) The line interface of claim 1, further comprising:
an analog to digital converter circuit, coupled between said broadband analog front end circuit and said programmable filter, configured to convert said output signal to a digital signal, wherein said programmable filter is a digital programmable filter.
4. (Original) The line interface of claim 1, wherein said plurality of separate transmission channels are directed to a plurality of different service providers.

5. (Original) The line interface of claim 4, wherein said plurality of separate transmission channels comprise a plurality of signals with a plurality of different modulation schemes.

6. (Original) The line interface of claim 1, wherein said programmable filter is programmed with software.

7. (Original) The line interface of claim 6, wherein said software is downloaded to said programmable filter.

8. (Original) The line interface of claim 1, wherein said plurality of separate frequency bands are determined according to a protocol including at least one of POTS, ISDN, ADSL, VDSL, SDSL, IDSL, HDSL, and HDSL2.

9. (Original) The line interface of claim 8, wherein said ADSL is one of full rate ADSL, G.Lite, CAP, and QAM.

10. (Original) The line interface of claim 9, wherein said ADSL and said POTS coexist on said twisted pair telephone line.

11. (Original) The line interface of claim 10, further comprising:
a POTS detector circuit coupled to provide a POTS usage signal to said programmable filter indicating that a POTS bandwidth is in use.

12. (Original) The line interface of claim 11, wherein an ADSL bandwidth is expanded to include said POTS bandwidth when said POTS usage signal indicates that said POTS bandwidth is not in use, and said ADSL bandwidth is reduced to exclude said POTS bandwidth when said POTS usage signal indicates that said POTS bandwidth is in use.

13. (Original) The line interface of claim 11, wherein said POTS detector circuit detects whether a telephone connected to said twisted pair telephone wire is on hook or off hook.

14. (Original) The line interface of claim 11, wherein said POTS detector circuit determines if a POTS signal is communicated in said ADSL bandwidth or if said POTS signal is communicated in said POTS bandwidth.

15. (Currently Amended) A method of providing a plurality of services over a twisted pair telephone line, comprising the acts of:

receiving a broadband analog signal from said twisted pair telephone line;

filtering said broadband analog signal using a programmable filter into a plurality of separate bands wherein said plurality of separate bands are determined by programming said filter to generate a plurality of variable bandwidth channels;
and

transmitting said plurality of separate bands to a plurality of different service providers.

16. (Original) The method of claim 15, wherein said separate bands are transmitted to said plurality of different service providers through a data network and a voice network.

17. (Original) The method of claim 15, wherein said programmable filter is upgraded by programming said filter with software.

18. (New) A line interface for coupling a twisted pair telephone line with a communications network, comprising:

a broadband analog front end circuit coupling said twisted pair telephone line with said line interface; and

a programmable filter coupled to receive an output signal from said broadband analog front end circuit and configured to filter frequency bands of said output signal into a plurality of different transmission channels including:

a first transmission channel having a first variable frequency bandwidth; and
a second transmission channel having a second variable frequency bandwidth,
wherein said programmable filter can be programmed to adjust a band edge of either said first transmission channel or said second transmission channel to increase or decrease said first and second variable frequency bandwidths, respectively.

19. (New) The line interface of claim 18, further comprising:
a third transmission channel having a third variable frequency bandwidth.

20. (New) A method of providing a plurality of services over a twisted pair telephone line, comprising the steps of:
receiving a broadband analog signal from said twisted pair telephone line;
filtering said broadband analog signal using a programmable filter into a plurality of separate frequency bands including a first transmission channel having a first variable frequency bandwidth and a second transmission channel having a second variable frequency bandwidth;
programming said programmable filter to adjust a band edge of either said first transmission channel or said second transmission channel to increase or decrease said first and second variable frequency bandwidths, respectively; and
transmitting said first and second transmission channels to different service providers.

21. (New) The method of claim 20, wherein said step of filtering further comprises the step of:
filtering said broadband analog signal to further include a third transmission channel having a third variable frequency bandwidth.